

COMPONENTS

FAQ

Q Should I look for a motherboard with good overclocking settings?

A Overclocking is the process of making your hardware operate faster than its factory speed. This is possible because processors, memory and graphics cards aren't set at their limits, but are made to run at safe, reliable speeds. If you want to get better performance from your components, look for a motherboard that gives you control over both the speed of components and their voltage. Usually, tiny amounts of extra voltage are needed to ensure stable operation.

Also look for motherboards that automatically overclock by a preset amount, such as five or 10 per cent. This way, there's less risk of damaging your components by overclocking them too much.

Jim Martin

Deputy Editor

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AOPEN XC Cube EX945-GC

★★★★

£147 inc VAT

From www.shoebboxcomputers.com

Barebones PCs tend to cost around £200, so AOpen's latest XC Cube will appeal to anyone looking for a small form factor PC on a budget. It's not bad-looking and it strikes a good balance between size and roominess, because while it's compact there is room inside for components.

There's a 5¼in bay for an optical drive, a 3½in bay for a media card reader or other front-panel device and an internal 3½in bay for a hard disk. There's no need to buy an optical drive with a black front panel as it will be hidden behind the XC Cube's hinged door. Inside, the eject button has three positions, which should ensure it hits your drive's button.

Only one SATA cable and power converter is included, so you'll need a second if you want to install a SATA hard disk and optical drive. The power supply has three power connectors, all of which are the standard four-pin Molex type. This means you can only install an x16 PCI-E graphics card that doesn't require extra power, as there's no PCI-E power connector. Long cards will fit, but they'll need low-profile heatsinks, or else they'll stick out of the side of the case. Behind the x16 slot is a x1 PCI-E slot.

There are two DDR2 memory slots, which will accept up to 4GB of 533 or 667MHz memory. Although the Intel 945GC chipset is a little old, it still supports LGA775 processors with up to 1,066MHz frontside bus speeds. This includes the Core 2 Extreme X6800, but few people are going to need this much power.

If you don't need 3D power then the onboard Intel GMA 950 graphics chipset should suffice, but it only has a VGA output. There are also no DVI or TV outputs. You do get 7.1



audio, via mini-jack outputs, but there are no S/PDIF connections.

Installing components into the XC Cube is straightforward. The only exception is the processor cooler, which has four screws that are tensioned by springs. Two screws are blocked by the top rail of the case, which makes it impossible to use a normal screwdriver. We had to resort to a right-angled ratchet, which is a tool not everyone will own. The other two screws need a long-necked screwdriver.

The BIOS is a basic affair, and there are few settings. You can overclock the processor's FSB, but there are no options to lock the PCI Express bus's speed or any voltage settings. There's no RAID, either, and limited power management settings.

The XC Cube does not have the frills of Shuttle's SN68PTG6 (reviewed in *What's New, Shopper* 240) so it is best suited to home office use, where RAID, Gigabit Ethernet and HDMI outputs are superfluous, and you're not paying for features you don't need.

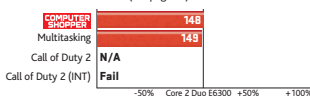
Jim Martin

SUMMARY

- ✓ Quiet
- ✓ Supports 1,066MHz FSB
- ✗ Limited video outputs

BAREBONE OFFICE PC Socket LGA775 processor socket, 2x DDR2 533/667 DIMM slots, Intel GMA 950 graphics, 1x PCI-E x16, 2x SATA/300 ports, 1x 10/100 network, 6x USB2, 7.1 audio, 1x 5¼in bays, 2x 3½in bays
PART CODE 95.EX459.2Y20
DETAILS www.aopen.com

PERFORMANCE (see page 62)



Also consider...

INTEL Core 2 Duo E6750

★★★★★

£117 inc VAT

From www.redstore.com

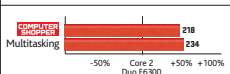


BEST BUY Intel's latest Core 2 Duo processor has a faster FSB speed of 1,333MHz, so there's more bandwidth available to talk to system components, although you need a motherboard that supports this speed. It's incredibly quick, but also great value.

If you're looking to build a new PC and want a lightning-fast processor, this is the one to buy.



PROCESSOR Two cores running at 2.66GHz, LGA775, 333MHz external bus (1,333MHz quad-pumped FSB), 4MB L2 cache
PART CODE BX80557E6750
DETAILS www.intel.com
FULL REVIEW Oct 2007



SAPPHIRE Radeon HD 3850

★★★★★

£95 inc VAT

From www.lambdatek.com/componentshop



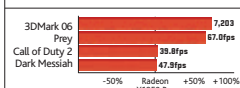
For less than £100, the HD 3850 lets you play the latest games

at high resolutions. It's excellent value as it's also capable of decoding H.264 video, so you can add a Blu-ray player to your PC, for example, and the 3850 will ensure smooth movie playback.

It will take up only one slot inside your PC, and its fan is extremely quiet, too.



PCI EXPRESS GRAPHICS CARD ATI Radeon HD 3850, PCI-E x16 2.0 interface, 256MB GDDR 3 memory running at 829MHz (1.67GHz effective), 669MHz core speed, 2x DVI, TV-out
PART CODE 21121-00-50R
DETAILS www.sapphiretech.co.uk
FULL REVIEW Mar 2008



FOXCONN

Mars

★★★★★

£114 inc VAT

From www.microdirect.co.uk

Foxconn's Mars is aimed squarely at gamers.

It's based on the Intel P35 chipset and supports all Core 2 Duo and Quad processors, with FSB speeds up to 1,333MHz, and a maximum of 8GB of DDR2 memory up to 1,066MHz.

It has two PCI-E x16 slots, so you can install two ATI graphics cards and use them in CrossFire mode. However, as the second slot has only four lanes rather than 16, this isn't a choice we would recommend as it will limit 3D performance. Instead, the Mars is ideal for anyone who is looking to build a fast PC with a single graphics card.

One of the main reasons for this is the sheer amount of control the Mars offers for overclocking. As well as settings for increasing the FSB speed, you can boost the voltages being sent to the chipset and other components. This helps to avoid crashes when running at faster speeds. You can also adjust the processor multiplier in 0.5x increments instead of 1x. This feature is supported by the new 45nm Penryn processors, making the Mars suitable if you're planning on buying one of the latest Intel Core 2 Duos. Finally, you can store four custom overclocking profiles and switch quickly between them.

If overclocking doesn't interest you, then the Mars is still a fast motherboard at standard settings and has so much on board that you won't need to buy any extras. There are more SATA and USB ports than you're likely to need, plus RAID 0, 1, 5 and 0+1 support, Gigabit Ethernet and two FireWire ports and eSATA. There's also 7.1 audio with optical and coaxial S/PDIF outputs.

Usefully, there are power, reset and BIOS clear buttons, so you can assemble and test the Mars before installing it into your case, and there are also five fan headers to give plenty of cooling.

Thanks to its heat pipe cooling, there are no fans on the motherboard, so it won't add to the din your PC makes. Although the Mars doesn't have built-in wireless networking, it's still great value at this price.

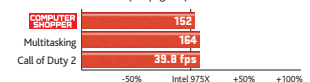
Jim Martin

SUMMARY

- ✓ Packed with features
- ✓ Great for overclocking
- ✗ Not the best choice for CrossFire

INTEL MOTHERBOARD Socket LGA775, Intel P35/Intel ICH9R chipset, 4x DDR2 slots, 1x PCI-E x16, 1x PCI-E x4, 1x PCI-E x1, 3x PCI, 6x SATA/300, 8x USB2, 2x FireWire, eSATA
PART CODE 0201080000-500-G
DETAILS www.foxconnchannel.com

PERFORMANCE (see page 62)



SAPPHIRE

Radeon HD 3870

★★★★★

£136 inc VAT

From www.lambda-tek.com/componentshop

We reviewed Sapphire's Radeon HD 3850 in *What's New, Shopper* 241 (see 'Also consider...', opposite). This is its bigger brother, the 3870.

On paper, the 3870's specifications are considerably better than the pricier Gigabyte GeForce 8800GT's (see 'Also consider...', below). The 775MHz core speed, for example, is a lot faster than the 8800GT's 600MHz, while the 512MB of GDDR4 memory runs at a blistering 2.25GHz compared to 1.8GHz. The graphics processor itself is identical to the Radeon HD 3850's with 320 stream processors and 666 million transistors, but it runs faster.

In isolation, numbers like this are meaningless. What really counts is the actual performance in games. In 3DMark06, the Radeon HD 3870 wasn't far behind the 8800GT, scoring 8,331. It was only seven frames per second (7fps) short of the 8800GT's 87.1fps in Prey, and just 3fps behind in our Dark Messiah test. Only Call of Duty 2 proved a challenge, where the HD 3870 could muster just 45.4fps compared to the 8800GT's 69.8fps. Overall, though, the two cards are similar performers.

Like the HD 3850, the HD 3870 supports CrossFireX. This means you can install up to four of the cards on a suitable motherboard, although this is an expensive move, and it won't give you four times the performance. The HD 3870's only real disadvantage is the large cooler design, which takes up two slots inside your PC, whereas the 3850 and 8800GT take up just one slot. If space is tight (in a small form-factor case, for example), then the HD 3870 is unlikely to fit where an 8800GT might.

Although the Gigabyte 8800GT still costs over £160, you can buy an identical card from other manufacturers for the same price as an HD 3870. Prices are still tumbling, though, so check internet retailers for the latest prices to get the best bargain.

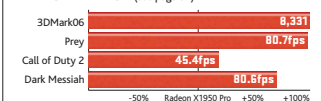
Jim Martin

SUMMARY

- ✓ H.264 decoding, great performance
- ✓ Quiet
- ✗ Takes up two slots

PCI EXPRESS GRAPHICS CARD ATI Radeon HD3870 chipset, PCI-E x16 2.0 interface, 775MHz core speed, 512MB GDDR4 memory running at 2.25GHz, 2x DVI, TV-out
PART CODE 21122-00-20R
DETAILS www.sapphiretech.com

PERFORMANCE (see page 62)



COOLER MASTER

Hyper TX 2

★★★★★

£10 inc VAT

From www.yoyotech.co.uk

If you need a cooler that will work with Intel or AMD

processors then you won't find a better bargain than the Hyper TX 2. This processor cooler has three copper heatpipes and a 92mm fan, thus ensuring that your

processor is kept cool without making a racket. Also, the TX 2 runs at 22dBA or less, which is virtually silent.



PROCESSOR COOLER Supports Intel LGA775, AMD Socket AM2 + 939 processors, 92mm fan, 1,700-2,000rpm spin speed, 22dBA max operating volume
PART CODE RR-CCH-L9U1-GP
DETAILS www.coolermaster.co.uk
FULL REVIEW Feb 2008

AOPEN

MP965-DR

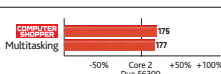
★★★★★

£297 inc VAT

From www.pciexpressshop.co.uk

Aopen's latest mini-PC is around the same size as a Mac mini, but is even more stylish. It's a barebones case, but comes with a slimline DVD writer, so you need only to add a laptop-style processor, RAM and hard disk. You get a Media Center remote control in the box and there's a DVI-to-HDMI adaptor so you can connect the PC to a high-definition TV.

BAREBONES PC Intel 965GM chipset, supports Socket P processors, 4x USB2, FireWire and Gigabit Ethernet ports, DVI and TV outputs, Intel GMA 3100 graphics.
DETAILS www.aopen.nl
FULL REVIEW Dec 2007



GIGABYTE

GeForce 8800GT

★★★★★

£161 inc VAT

From www.kikatek.com

Despite only taking up one slot inside your PC,

the GeForce 8800GT is a powerhouse that will play the latest games with no problems, even if you want to play with the highest quality settings. It can also decode HD video, including Blu-ray and HD DVDs, so it's ideal for a Media Center system that will also be used for gaming.



PCI EXPRESS GRAPHICS CARD Nvidia GeForce 8800GT, PCI-E x16 interface, 512MB GDDR 3 memory running at 900MHz (1.8GHz effective), 600MHz core speed, 2x DVI, TV-out
PART CODE GV-NX88T512H-B
DETAILS www.giga-byte.co.uk
FULL REVIEW Mar 2008

